

Claims

1. A display entity for use in presenting a visual depiction of a process entity of a process plant to a user on a display device, the display entity comprising:
 - a computer readable memory; and,
 - a display object stored on the computer readable memory and adapted to be executed on a processor, the display object including:
 - a property memory adapted to store a value of a property associated with the process entity;
 - a graphic representation of the process entity adapted to be displayed to a user on a display device when the display object is executed on a processor; and
 - a routine that operates in conjunction with the graphic representation of the process entity displayed to the user and that is associated with the value of the property.
2. The display entity of claim 1, wherein the routine comprises an animation routine that animates the graphic representation.
3. The display entity of claim 2, wherein the animation routine animates the graphic representation in a continuous manner.
4. The display entity of claim 2, wherein the animation routine animates the graphic representation by applying at least one of a skew, a rotation, a translation, and a resizing to the graphic representation.

5. The display entity of claim 2, wherein the animation routine animates the graphic representation by changing one of a color animation, or a color gradient animation, or an opacity animation, or a font characteristic animation, or a video property the graphic representation.

6. The display entity of claim 1, wherein the graphic representation of the process entity includes two or more primitives and wherein the routine changes a property of one of the primitives.

7. The display entity of claim 6, wherein the property of one of the primitives is a fill property.

8. The display entity of claim 1, further including a reference that connects the property value to a data source within the process plant.

9. The display entity of claim 8, wherein the routine is an executable routine that transforms the property value received from the data source within the process plant.

10. The display entity of claim 9, wherein the executable routine transforms the property value to a color or to one of an enumerated list of values or to a length, or to a font name, or to a localized string, or to a duration, or to a rotation.

11. The display entity of claim 1, wherein the routine is an executable routine that detects a condition associated with the process entity and indicates the detected condition with the change to the graphic representation of the process entity.

12. The display entity of claim 11, wherein the detected condition relates to a communication status, or a device status, or a value status.

13. The display entity of claim 1, wherein the routine is an executable routine that accepts an input from a user via the graphic visualization.

14. The display entity of claim 13, wherein the executable routine uses the input to cause a change to the property value to effect a runtime environment exterior to the display entity.

15. A graphic display editor for use in a process plant to create a graphical display that represents the operation of one or more entities within the process plant, the graphic display editor comprising:

- a library of graphic objects, each graphic object including a visual representation of a physical or a logical entity within the process plant;

- a graphically based editor canvas routine that enables a user to define an executable graphic display by placing one or more visual representations of the graphic objects from the library of graphic objects onto an edit canvas to define a manner in which the one or more visual representations of the graphic objects will be displayed on a display device to a user during execution of the graphic display;

- a property definition canvas routine adapted to enable a user to define a property associated with at least one of the plurality of graphic objects;

- a binding definition routine adapted to enable a user to specify a binding between the property and a runtime environment within the process plant; and

- a definition routine adapted to enable a user to define a routine that operates in conjunction with the visual representation of one of the graphic objects and the property during execution of the graphic display.

16. The graphic display editor of claim 15, wherein the definition routine enables a user to define the routine as an animation routine that animates the visual representation of the one of the graphic objects.

17. The graphic display editor of claim 16, wherein the definition routine enables a user to define the routine as an animation routine that animates the visual representation of the one of the graphic objects in a continuous manner.

18. The graphic display editor of claim 16, wherein the definition routine enables a user to define the routine as an animation routine that animates the visual representation of the one of the graphic objects by applying at least one of a skew, a rotation, a translation, and a resizing to the visual representation of the one of the graphic objects.

19. The graphic display editor of claim 16, wherein the definition routine enables a user to define the routine as an animation routine that animates the visual representation of the one of the graphic objects by changing a color associated with the visual representation of the one of the graphic objects.

20. The graphic display editor of claim 15, wherein the definition routine enables a user to define the routine as an executable transform routine that transforms a property value received for the property from the data source within the process plant.

21. The graphic display editor of claim 20, wherein the definition routine enables a user to define the executable transform routine as a transform that transforms the property value to a color, or to one of an enumerated list of values, or to a length, or to a font name, or to a localized string, or to a duration, or to a rotation.

22. The graphic display editor of claim 15, wherein the definition routine enables a user to define the routine as an executable routine that detects a condition associated with the process entity and that indicates the detected condition with the change to the visual representation of the one of the graphic objects.

23. The graphic display editor of claim 15, wherein the definition routine enables a user to define the routine as a routine that changes the visual representation of the one of the graphic objects using different animations selected based on a value of the property.

24. The graphic display editor of claim 15, wherein the definition routine enables a user to define the routine as a routine that accepts an input from a user via the graphic visualization.

25. The graphic display editor of claim 24, wherein the definition routine enables a user to define the routine as an executable routine that uses the input to cause a change to the property to effect a variable in a runtime environment exterior to the display entity.

26. A graphical display for use in a process plant to represent one or more entities within the process plant, the graphical display comprising:

a plurality of graphical objects interconnected together to form a visual representation of at least a portion of the process plant;

a property memory adapted to store a value for a property associated with at least one of the plurality of graphical objects;

a binding that binds the property memory to a runtime environment within the process plant to receive data associated with the property to determine the value of the property; and

a routine that operates in conjunction with respect to the visual representation of at least one of the plurality of graphic objects and the value of the property.

27. The graphical display of claim 26, wherein the routine comprises an animation routine that animates the visual representation of the one of the plurality of graphic objects based on the value of the property.

28. The graphical display of claim 27, wherein the animation routine animates the visual representation in a continuous manner.

29. The graphical display of claim 27, wherein the animation routine animates the visual representation by applying at least one of a skew, a rotation, a translation, and a resizing to the visual representation.

30. The graphical display of claim 27, wherein the animation routine animates the visual representation by changing a color of the visual representation.

31. The graphical display of claim 26, wherein the visual representation of the one of the plurality of graphic objects includes two or more primitives and wherein the routine changes a property of one of the primitives.

32. The graphical display of claim 26, wherein the routine is an executable routine that applies a transform to the property value.

33. The graphical display of claim 32, wherein the executable routine transforms the property value to a color or to one of an enumerated list of values.

34. The graphical display of claim 26, wherein the routine is an executable routine that detects a condition associated with a process entity based on the value of the property and indicates the detected condition with a change to the visual representation of the one of the plurality of graphic objects.

35. The graphic display of claim 26, wherein the routine changes the visual representation of the one of the plurality of graphic objects using different animations selected based on the property value.

36. The graphic display of claim 26, wherein the routine is an executable routine that accepts an input from a user via the visual representation of the one of the plurality of graphic objects.

37. The graphic display entity of claim 36, wherein the executable routine uses the input to cause a change to a runtime environment exterior to the display entity.

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